This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A process for the production of homogeneously packed opal-like or inverse opal-like sphere-based crystals comprising:

(a) adding a sufficient amount of a water suspension of monospheres having a particle size of 20 nanometers to 30 microns to a flat moving bed porous filtration membrane so as to form a layer thickness on the flat moving bed of 50 microns to 5 mm;

(b) moving the monospheres on the moving bed filtration membrane substantially horizontally over a vacuum filtration zone, ~~to apply~~ and applying a sufficient substantially constant vacuum filtration pressure to the monospheres to obtain crystalline homogeneously packed monospheres;

(c) processing the packed monospheres for stabilization, said processing comprising heating and/or chemically bonding the crystalline packed monospheres.

Claim 2 (previously presented): A process according to claim 1, wherein processing of the packed monospheres for stabilization comprises infiltrating the packed monospheres with a chemical bonding agent.

Claim 3 (previously presented): A process according to claim 2, wherein the infiltrating step is accomplished while the packed monospheres are moving on the vacuum bed filtration membrane and while a vacuum filtration pressure is being applied to the packed monospheres.

Claim 4 (previously presented): A process according to claim 2, further comprising

curing the chemical bonding agent.

Claim 5 (previously presented): A process according to claim 1, wherein the monospheres comprise SiO_2.

Claim 6 (previously presented): A process according to claim 1, wherein the monospheres comprise a polymeric material.

Claim 7 (currently amended): A process according to claim 1, for the production of inverse opal-like sphere based crystals ~~comprising:~~ wherein

~~(a) adding monospheres to the moving bed filtration membrane;~~

~~(b) moving the monospheres on the moving bed filtration membrane horizontally over a vacuum filtration zone to apply vacuum filtration pressure to the monospheres to obtain packed monospheres;~~

~~(c) processing~~ in step (c) the packed monospheres are processed for stabilization by infiltrating the packed monospheres with a bonding agent; and further comprising

(d) removing the monospheric material to obtain an inverse opal-like structure comprising air-spheres.

Claim 8 (previously presented): A method according to claim 7, wherein the infiltrating step is accomplished while the packed monospheres are moving on the vacuum bed filtration membrane and while a vacuum filtration pressure is being applied to the packed monospheres.

Claim 9 (previously presented): A process according to claim 7, wherein the bonding agent comprises SiO_2, Al_2O_3, TiO_2, SnO_2, Fe_2O_3, ZrO_2, CeO_2 or Y_2O_3.

Claim 10 (previously presented): A process according to claim 6, wherein the polymeric material comprises polystyrene, polymethacrylate, or polyvinyltoluene.

Claim 11 (previously presented): A process according to claim 1, wherein the suspension has a concentration of monospheres of 2-50% by weight of solids in water.

Claim 12 (previously presented): A process according to claim 11, wherein the concentration is 10% to 20% by weight.

Claim 13 (currently amended): A process according to claim 1, wherein the vacuum pressure is ~~400 to ~ 600 nm~~ about 400 to about 600 mm Hg.

Claim 14 (currently amended): A process according to claim 11, wherein the vacuum pressure is ~~400 to ~ 600 nm~~ about 400 to about 600 mm Hg.

Claim 15 (currently amended): A process according to claim 12, wherein the vacuum pressure is ~~400 to ~ 600 nm~~ about 400 to about 600 mm Hg.

Claim 16 (currently amended): A process according to claim 1, wherein the monospheres have a particle size in the range of ~~20~~ 100 nanometers to ~~30~~ 10 microns.

Claim 17 (currently amended): A process according to claim 14, wherein the monospheres have a particle size in the range of ~~20~~ 150 - 450 nanometers ~~to 30 microns~~.

Claim 18 (currently amended): A process according to claim 1, wherein the monospheres are deposited in a layer thickness of about ~~50~~ 200 microns to ~~5 millimeters~~ 1 millimeter.

Claim 19 (currently amended): A process according to claim ~~1~~ 16, wherein monospheres are deposited in a layer thickness of about 200 microns to 1 millimeter.

Claim 20 (currently amended): A process according to claim ~~18~~ 17, wherein monospheres are deposited in a layer thickness of about 200 microns to 1 millimeter.

Claim 21 (new): A process according to claim 1, wherein the pores of the porous filtration membrane is equal to or slightly smaller than the spheres to be filtered.